

## REMARKS

The Office Action dated December 29, 2004 has been carefully reviewed. Claims 1-17 and 19-31 are pending in this application. By this amendment, claims 1, 17, and 20 have been amended. Claim 19 has been canceled, with the subject matter thereof being inserted into amended claim 17. Claims 2-16 and 21-31 are unchanged by this amendment.

### 35 U.S.C. § 102(b) Rejections

Claims 1-17 and 19-31 were rejected under 35 U.S.C. § 102(b) over U.S. Patent Application Publication No. 2002/0077542 to Vilsmeier et al. (hereinafter "Vilsmeier"). Applicants respectfully traverse this rejection. Firstly, each of claims 1-17 and 19-31 is fully supported by U.S. Provisional Patent Application Serial No. 60/413,692, filed September 26, 2002, to which the present application claims priority. As such, claims 1-17 and 19-31 are not properly anticipated by Vilsmeier under 35 U.S.C. § 102(b). Moreover, as will be discussed below in greater detail, Vilsmeier does not anticipate claims 1-17 and 19-31 under any paragraph of 35 U.S.C. § 102. Reconsideration of claims 1-17, and 19-31 is respectfully requested.

### Discussion Re: Patentability of Claim 1

Claim 1 is as follows:

1. A method of operating a surgical burr during performance of an orthopaedic procedure, the method comprising the steps of:
  - determining position of the surgical burr and generating a machine-generated output signal in response thereto,
  - generating a cue to a user of the surgical burr in response to generation of the machine-generated output signal, and
  - adjusting operation of the surgical burr in response to generation of the machine-generated output signal.

None of the surgical tracking systems disclosed in Vilsmeier performs each of the above limitations recited in Applicants' claim 1. The Examiner indicated that such features are disclosed in paragraphs 14 and 29 of Vilsmeier. Applicants have carefully reviewed such paragraphs and can find no teaching of a system which performs

all of the limitations of claim 1. For example, paragraph 14 teaches the use of a computer navigated system that is *manually operated* by the surgeon. Visual or acoustical warning signals are used to warn the surgeon when he or she deviates from the surgical plan. Paragraph 29 describes an automated surgical system using *robot technology* in which case the robot navigates the drill to effectuate drilling of the patient's jawbone.

In the case of the manual system described in paragraph 14, the operation of the drill is not adjusted in response to a determined position of the drill. Specifically, although visual and/or acoustical warning signals are generated, there is no teaching that operation of the drill is actually adjusted by the system (i.e., it appears to be adjusted manually by the surgeon, if at all). In the case of the robotic system of paragraph 29, cues are not generated to the user in response to a determined position of the drill. This stands to reason since, as described in the last two lines of paragraph 29, *the robot* allows correct movements and prevents incorrect movements. In other words, there is no teaching (or need, for that matter) for the robot system of paragraph 29 to generate visual and/or acoustical signals to the user (or any other type of cue) since the drill is not under the control of the user, but rather is under the control of the robot.

As such, none of the systems disclosed in Vilsmeier teach each of the limitations of claim 1. "When a claimed invention is not identically disclosed in a reference, and instead requires picking and choosing among a number of different options disclosed by the reference, the reference does not anticipate." *Mendenhall v. Astec Industries, Inc.*, 13 U.S.P.Q.2d 1913, 1928 (Tenn. 1988), *aff'd* 13 U.S.P.Q.2d 1956 (Fed Cir. 1989). As a result, Vilsmeier does not anticipate Applicant's claim 1.

#### Discussion Re: Patentability of Claims 2-8, 26, and 27

Each of claims 2-8, 26, and 27 includes claim 1 as a base claim. As a result, each of claims 2-8, 26, and 27 is allowable for the reasons hereinbefore discussed with regard to claim 1. Moreover, each of claims 2-8, 26, and 27 includes additional limitations which are not disclosed in Vilsmeier.

For example, claim 2 (in combination with base claim 1) recites adjusting speed of the surgical burr in response to generation of the machine-generated output signal. There is no teaching in Vilsmeier which teaches adjusting speed of the burr in

response to the determined location of the burr. Claims 3 and 4 recite increasing and decreasing, respectively, the speed of the burr. There is no such teaching in Vilsmeier.

For further example, claim 6 recites “determining position of the surgical burr relative to a predetermined boundary around an anatomical feature.” Applicant traverses the Examiner’s unsupported statement that “by locating the position of the surgical burr, the position is located relative to an anatomical feature or any boundary thereabouts”. There is simply no support for the premise that “a boundary around an anatomical feature” is inherent to the teaching of Vilsmeier. Applicant requests that the Examiner explain how the use of such a boundary is inherent to the system of Vilsmeier in light of its complete absence from the disclosure of Vilsmeier.

#### Discussion Re: Patentability of Claim 9

The discussion relating to the patentability of claim 1 is relevant to the patentability of claim 9. For example, claim 9 includes the limitations “(b) adjust operation of the surgical burr in response to generation of the output signal” and (c) generate a cue on the surgical burr in response to generation of the output signal”. As a result, claim 9 is allowable for the reasons hereinbefore discussed with regard to claim 1.

#### Discussion Re: Patentability of Claims 10-16, 28, and 29

Each of claims 10-16, 28, and 29 includes claim 9 as a base claim. As a result, each of claims 10-16, 28, and 29 is allowable for the reasons hereinbefore discussed with regard to claim 9. Moreover, the discussion relating to the patentability of claims 2-8, 26, and 27 is relevant to the patentability of claims 10-16, 28, and 29.

#### Discussion Re: Patentability of Claim 17

The discussion relating to the patentability of claim 2 is relevant to the patentability of claim 17. For example, claim 17, as amended, includes the limitation “a controller configured to control speed of the surgical burr based on output from the surgical navigation system”. As discussed above in regard to claim 2, there is no teaching in Vilsmeier related to the control of the speed of a surgical burr, much less the

control of a surgical burr based on output from a surgical navigation system. As a result, claim 17 is allowable for the reasons hereinbefore discussed with regard to claim 2.

Discussion Re: Patentability of Claim 20

The discussion relating to the patentability of claims 1 and 6 is relevant to the patentability of claim 20. In particular, there is no teaching in Vilsmeier related to determining the position of a surgical burr relative to a predetermined boundary of a bone feature to be removed. Moreover, claim 20 includes the limitations "generating a cue to a user of the surgical burr in response to generation of the machine-generated output signal" and "adjusting operation of the surgical burr in response to generation of the machine-generated output signal." As discussed above in regard to claim 1, the combination of such limitations is not taught by Vilsmeier. As a result, claim 20 is allowable over Vilsmeier.

Discussion Re: Patentability of Claims 21-25, 30, and 31

Each of claims 21-25, 30, and 31 includes claim 20 as a base claim. As a result, each of claims 21-25, 30, and 31 is allowable for the reasons hereinbefore discussed with regard to claim 20. Moreover, the discussion relating to the patentability of claims 2-8, 26, and 27 is relevant to the patentability of claims 21-25, 30, and 31.

35 U.S.C. § 103 Rejections

Claims 1, 2, 5, 6, 20, and 21 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,269,785 issued to Bonutti (hereinafter "Bonutti"). It appears that the Examiner is again equating the steps recited in claims 1, 2, 5, 6, 20, and 21 with a number of mental steps performed by an operator of the manually controlled burr disclosed in Bonutti. Although one skilled in the art would understand from a review of Applicant's specification that claims 1, 2, 5, 6, 20, and 21 relate to machine implemented steps, claims 1 and 20 have been amended to recite "a machine-generated output signal" to clarify the same. As such, operation of the burr is adjusted in response

to generation of a machine-generated output signal. This clearly defines over the mental step of adjusting the burr cited by the Examiner.

To the extent that the Examiner maintains this rejection of claims 1, 2, 5, 6, 20, and 21 in light the amendment thereto to clarify the machine implemented nature of the claimed invention, Applicant respectfully requests that the Examiner identify a legally sufficient teaching, motivation, or suggestion that supports a modification of Bonutti in a manner which attempts to arrive at the invention of Applicant's claims.

### Conclusion

In view of the foregoing amendments and remarks, it is submitted that this application is in a condition for allowance. Action to that end is hereby solicited.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg, Deposit Account No. 10-0435 with reference to file 265280-73424.

Respectfully submitted,

BARNES & THORNBURG



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Shawn D. Bauer

Attorney Reg. No. 41,603

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Indianapolis, IN  
(317) 231-7313

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